

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

(10) International Publication Number
WO 2005/064639 A3

(51) International Patent Classification⁷:

C01B 31/02

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:

PCT/IB2004/052651

(22) International Filing Date:

3 December 2004 (03.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

03104900.0 22 December 2003 (22.12.2003) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]**; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BAKKERS, Erik, P., A., M. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **FEINER, Louis, F. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **BALKE-NENDE, Abraham, R. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agents: **ELEVLED, Koop, J. et al.**; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

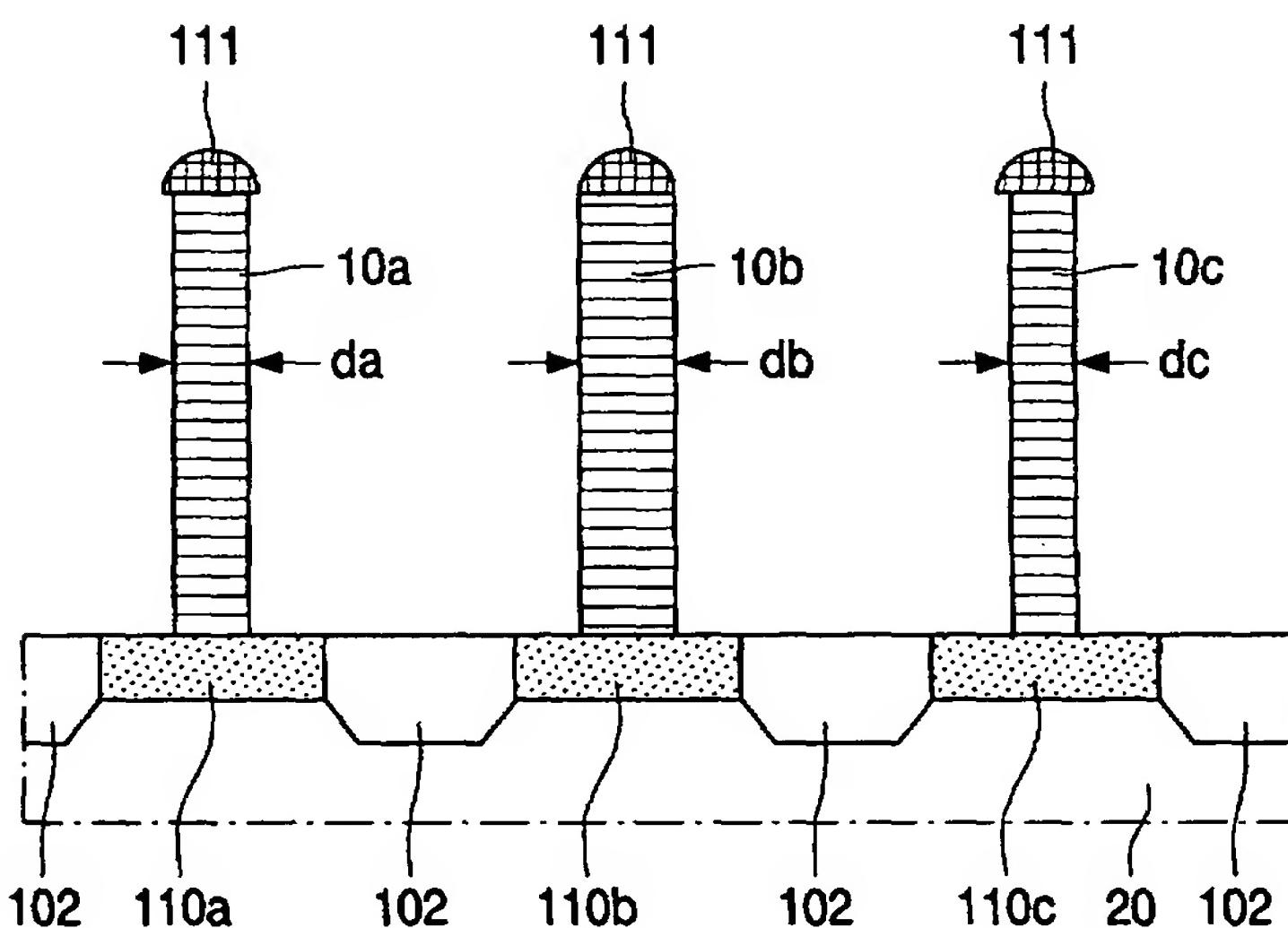
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,

[Continued on next page]

(54) Title: FABRICATING A SET OF SEMICONDUCTING NANOWIRES, AND ELECTRIC DEVICE COMPRISING A SET OF NANOWIRES



(57) Abstract: The method of fabricating a set of semiconducting nanowires (10) having a desired wire diameter (d) comprises the steps of providing a set of pre-fabricated semiconducting nanowires (10'), at least one pre-fabricated semiconducting nanowire having a wire diameter (d') larger than the desired wire diameter (d), and reducing the wire diameter of the at least one pre-fabricated nanowire (10') by etching, the etching being induced by light which is absorbed by the at least one pre-fabricated nanowire (10'), a spectrum of the light being chosen such that the absorption of the at least one pre-fabricated nanowire being significantly reduced when the at least one pre-fabricated nanowire reaches the desired wire diameter (d). The electric device (100) may comprise a set of nanowires (10) having the desired wire diameter (d). The apparatus (29) may be used to execute the method according to the invention.



PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM,
ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA,
SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR),
OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG)

Published:

— with international search report

(88) Date of publication of the international search report:

23 February 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.